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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|-------------------------|------------------|
| 10/039,369 | 01/02/2002 | Abdo Esmail Abdo | IBM / 196 | 9789 |
| 7590 | 03/07/2005 | | EXAMINER | |
| Thomas W. Humphrey Wood, Herron & Evans, L.L.P. 2700 Carew Tower 441 Vine Street Cincinnati, OH 45202-2917 | | | WU, YICUN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2165 | |
| | | | DATE MAILED: 03/07/2005 | |

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/039,369 | ABDO, ABDO ESMAL | |
| | Examiner | Art Unit | |
| | Yicun Wu | 2165 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 24 September 2004.
- 2a) This action is **FINAL**. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-17 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date: _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

III. DETAILED ACTION

1. Claims 1-17 are presented for examination.
2. Examiner has completed a through study of Applicant's amendment of 9-24-2004.
3. Especially, Applicant's amendments to claims 1-17 and remarks at pages 7-9 of the Amendment of 9-24-2004 has been carefully studied and reviewed.
4. Applicant's amendments to claims 1-17 further direct the claimed invention into a method for estimating statistics on an attribute of a relation.
5. Examiner has carefully and thoroughly studied and reviewed Applicant's amendment of 9-24-2004 and withdrawing his rejection and the applicant's argument becomes moot.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which the subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mozes (U.S. Patent 6,732,085) in view of Farrar et al. (U.S. Patent 6,263,345).

As to Claims 1, 6 and 11, Mozes discloses a method for estimating statistics on an attribute of a relation, comprising:

forming a histogram of the attribute of the relation (i.e. histogram. Fig. 4),

the histogram comprising statistics regarding tuples falling within each of a plurality of ranges of values of the attribute (i.e. data uniformity/range skew is evaluated for the data sample values with respect to the expected histogram buckets. In an embodiment, this is accomplished by gathering frequency and histogram information for the column values. Col. 5, lines 42-45),

the statistics being augmented to identify the most frequent values of the attribute within at least one of the ranges (i.e. gathering frequency and histogram information for the column values. Col. 5, lines 42-48), evaluating the histogram with a criterion for retrieval of data from a relation (fig. 4).

Mozes does not explicitly teach in connection with.

Farrar et al. teaches in connection with (i.e. in connection with) (abstract).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Mozes with in connection with.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Mozes by the teaching of Farrar et al. because providing in connection with allows accurately predict the number of rows and UECs for each histogram interval that will be returned by any predicate or relational operator in a query tree as taught by Farrar et al. (col. 2, lines 15-19).

As to Claims 2, 7 and 12, Mozes as modified teaches a method further comprising:

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forming a second histogram of the attribute of a second relation, the second histogram being augmented to identify the most frequent values of the attribute (i.e. histogram. Mozes Fig. 4 and Col. 5, lines 42-48), and

evaluating the histograms to identify frequent values shared by the histograms (i.e. gathering frequency and histogram information for the column values. Mozes Col. 5, lines 42-48).

As to claims 3, 8 and 13, Mozes as modified teaches a method further comprising

multiplying frequent values in each of the histograms (Mozes Col. 13, lines 35-42) to produce an estimate of join fanout of a join of the relations on the attribute (i.e. estimate the selectivity of the predicate involving that column. Mozes Col. 12, lines 50-55)

As to claims 4, 9 and 14, Mozes as modified teaches a method further comprising:

multiplying a frequency of a frequent value in one the histogram (Mozes Col. 13, lines 35-42) by an estimate of the average number infrequent values in the other histogram (Mozes Col. 12, lines 50-55)

As to claims 5, 10 and 15, Mozes as modified teaches a method further comprising:

computing a number of matching infrequent values in each the histogram (i.e. gathering frequency and histogram information for the column values. Mozes Col. 5, lines 42-48) by estimating a number of infrequent values in each relation using the histograms (i.e. estimate the selectivity of the predicate involving that column. Mozes Col. 12, lines 50-55), and

computing from the estimates the join fanout attributable to the attribute (i.e. estimate the selectivity of the predicate involving that column. Mozes Col. 12, lines 50-55).

As to claim 16, Mozes as modified teaches a program product wherein the signal bearing medium is a recordable medium (Mozes fig. 5-6).

As to claim 17, Mozes as modified teaches a program product wherein

the signal bearing medium is a transmission-type medium (Mozes fig. 5-6).

Conclusion

8. **THIS ACTION IS MADE FINAL**, Applicant's amendment necessitated the new ground(s) of rejection presented in this office action. Accordingly, ***THIS ACTION IS MADE FINAL. See MPEP 706.07(a)***. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory- period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136 (a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply-expire later than SIX MONTHS from the mailing date of this final action.

Points of contact

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yicun Wu whose telephone number is 571-272-4087. The examiner can normally be reached on 8:00 am to 4:30 pm, Monday -Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dov Popovici can be reached on 571-272-4083. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2100.

Yicun Wu
Patent Examiner
Technology Center 2100

February 25, 2005

C. Rones
CHARLES RONES
PRIMARY EXAMINER